proved quality of life with perhaps lesser frequency of acute complications of diabetes (such as hypoglycemic episodes) and even chronic complications (microvasculopathies and macrovasculopathies). Once again, solid data in this respect are hard to establish.

Science and technology have in the past decade had a major impact on insulin therapy. A substantial number of small portable pumps designed for continuous subcutaneous insulin infusion have appeared, each new generation being more flexible and smaller than the last.[2] In addition, as outlined by Dr Riddle, various devices and materials for self-monitoring of the degree of glycemic control have emerged. During the past few years, studies assessing implantable insulin delivery systems have been started[3,4] and within this past year papers from a symposium have been published concerning the possibility of devising implantable glucose sensors that might be a key component in a totally implantable artificial β-cell providing insulin to a diabetic patient in relationship to the glycemia levels.[5]

In addition, numerous laboratories are attempting to devise ways in which β-cell tissue can be implanted into an insulin-dependent diabetic patient.[6] Some of these approaches have been designed to explore segmental pancreatic transplantation, whereas other programs have focused on the possibility of implanting pancreatic tissue or isolated islets from available neonatal tissue. Newer agents and programs designed to reduce rejection of these transplanted tissues are being pursued, some using newer and more potent immunosuppressive agents, whereas other programs are focusing on macroencapsulation or microencapsulation techniques designed to protect the living β-cell or islet tissue from antibodies or cell-mediated rejection.

Finally, very recent studies have provided new evidence concerning the pathogenesis of insulin-dependent diabetes and indicate that it may be more than five years before the development of even impaired glucose tolerance in which abnormal autoimmunity (that is, islet cell antibodies) can be detected.[7] If further studies confirm that there is an extended period in which a person is a "pre" insulin-dependent diabetic patient, it is conceivable that immune intervention might be applied during this stage. If our concepts of the pathogenesis of insulin-dependent diabetes mellitus are correct and our immune intervention successful, then the possibilities of preventing insulin-dependent diabetes clearly exist.

But until that time that we can prevent this condition, or until there is widely available tissue or device implantation designed to achieve normal metabolism in an insulin-dependent diabetic patient, the programs suggested by Riddle provide a solid basis for treatment of an insulin-dependent or insulin-requiring diabetic patient.

J. STUART SOELDNER, MD
Associate Professor of Medicine
Harvard Medical School
Senior Associate in Medicine
Brigham and Women's Hospital
Head, Clinical Physiology Section, and Senior Investigator
Elliott P. Joslin Research Laboratory
Boston

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Ethical Crises and Cultural Differences: A Commentary

OVER THE YEARS, the epidemiologic concept of "indicator strain" has emerged as a valid adjunct to the study of environmental hazards. Briefly, it is based on the observation that frequently the presence of a latent offender will be readily revealed by the way it affects individuals whose vulnerability exceeds that of others, perhaps because resistance either has not had time to develop or has been compromised.

This concept has provided constructive insight into many health problems. An example is the almost universal experience with traveler's diarrhea[1]; others have more tantalizing overtones, pertaining as they do to infections,[2] neoplasms[3] or even the as yet elusive intersection of infection, neoplasia and life-style.[4]

That the concept is not limited to environmental hazards and organic pathology is vividly illustrated by the perceptive study published by Meleis and Jonsen in this issue. Central to the annotated case report is a terminally ill patient around whom the patient's physicians and his family revolve in a complex interplay of human and cross-cultural relationships. A fatal illness abruptly confronts the family with the novel environment of the operational system into which their dying relative is being assimilated. Unaware as they are of the cultural values that permeate the system, they react to the unfamiliar setting as a classical indicator strain capable of pinpointing urgent problem areas for scrutiny or study.

Thus we learn that at the interface between hospital and family, the hospital's needs for informed consent, disclosure of information and termination of life support only heightened the family's mistrust of the professionals and of the system they represented. Meleis and Jonsen believe that this concatenation of events represents more than a simple happenstance brought about by the different cultural background of the patient's family. One can only concur with them, and emphatically so. For some of our own patients, even for some of us, at one time or another, informed consent, disclosure of information and termination of life support have proved to be the very same anguishing hurdles that confronted the unfortunate relatives. Only in their case the entire situation became more fright-

ening and anxiety-ridden because of the rapid pace at which the demands imposed by those three major problems succeeded each other. And, behaving as a sensitive and unfailing indicator strain, the family reacted adversely to each one of them.

The authors also conclude that a universal lesson can be learned from the episode they recount—namely, that it is necessary to comprehend the values and beliefs of patients from other cultures. This is true and suggests that opportunities for anthropologic exposure during the educational process are suboptimal. But I believe that the lesson it teaches goes beyond that. Their study confirms the irreversibility of the emotional chain reactions that may follow inadequate or misconstrued information: in the final analysis what counts is not what was said but what the listener believes he or she has heard.

It is also an illustration of the universal search for a dependable and trusted social support system whenever stress becomes overwhelming. In due time this need was felt on both sides of the operational interface, and each side mobilized what in their eyes seemed most natural: the physicians called for assistance from legal counsel and from the medical ethics committee of the hospital; the dying patient's mother, sister and brothers looked for the backing they needed in time-honored family ties and in the mutual reinforcement they could generate by being physically present in the hospital. However, while communication within sides flowed easily, communication between sides was to become a trying and unsatisfactory experience. In this respect, isn't the microcosm portrayed by Meleis and Jonsen a cogent reminder of the large-scale problems that can be attributed to mismatched communications within a group and among various groups?

Perhaps the case report could even stimulate some interest in a critical evaluation of those otherwise most desirable support systems. In fact one may wonder if some negative ripple effect might not have developed once the lines were drawn. Could the consensus that bolstered the physicians' position have lessened on their part any urge to discuss with the family, even for the mere purpose of discarding them, options lying outside the consensus itself? Conversely, by being around as much of the time as possible and becoming very demanding, could the united front presented by the family have increased the reticence of the hospital personnel? Either event would have further diluted any opportunity for effective communication, especially when a dying patient makes communication increasingly more difficult.[5] Thus Meleis and Jonsen's study is a lesson on the crucial role that should be played by communication, understanding and—why not?—empathy and compassion as well, whenever a catastrophe is impending, and mutual trust risks becoming its first victim. In fact, it would be hard to visualize the rule of mutual trust[6] surviving protracted bilateral lack of communication and what patients and their relatives may perceive as insensitivity to their plight.

PIERO MUSTACCHI, MD
Department of Epidemiology and International Health
University of California, San Francisco

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